

Better Water LLC

Single Tank Bicarb Mix Only Service Manual



rev. Jan 2014

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**Visit our website to see our complete product line of
water purification products!**

www.betterwater.com



Better Water LLC; 698 Swan Dr; Smyrna, TN 37167; www.betterwater.com

Our Company

Better Water LLC is a leading integrated manufacturer of water treatment equipment and components for the industrial, commercial and institutional markets.



Located in Smyrna, Tennessee, Better Water LLC continues its history of manufacturing and distribution of equipment specifically designed for the renal dialysis market.

Founded in 1971, Better Water LLC has built a reputation for solving our customers' toughest problems with high quality products and unmatched service.

Contact Us

Better Water LLC
698 Swan Dr
Smyrna, TN 37167

Phone (615) 355-6063
Fax (615) 355-6065

Technical Support:
Phone (615) 355-6063, press "1"
Email support@betterwater.com

Customer Service:
Phone (615) 355-6063, press "3"
Email customerservice@betterwater.com

Technical Phone Support

Support is available regarding all Better Water LLC systems, **24 hours a day, 7 days a week.**

- Normal business hours are **Monday through Friday** from **8:00 am until 3:30 pm, Central Standard Time** (*excluding holidays*)

Call (615) 355-6063, press "1" for Technical Support

Emergency assistance is available after normal business hours (*including holidays*) by calling **(615) 708-8627.**

BEFORE calling for emergency assistance:

- Check the Troubleshooting guide in this manual
- Check the electrical-power connections, fuses/circuit breakers (*if applicable*)
- Check all valves to ensure each is in the correct position (*if applicable*)

Technical Support Info Online

Our website, www.betterwater.com, which is updated frequently, contains a wealth of technical support information on the **SUPPORT** tab and includes:

- Operator and Service Manuals
- Interactive Frequently Asked Questions for Troubleshooting
- Consumables and Accessories Lists
- Technical Service Bulletins

For your convenience there are also online forms for placing **Orders** and requesting **Returned Goods Authorization**. These are Adobe forms that can be downloaded and either faxed or emailed to us.



Specific Contacts

Technical Support	Phone (615) 355-6063, option "1"
	Email support@betterwater.com
To Place an Order (purchase orders)	Fax (615) 355-6065
	Email orders@betterwater.com
	Phone (615) 355-6063
Customer Service (returns)	Phone (615) 355-6063, option "2"
	Fax (615) 355-6065
	Email customerservice@betterwater.com

Website www.betterwater.com

Helpful information and forms that can be found on our website:

- Operator & Service Manuals
- Technical Service Bulletins
- Consumables and Replacement Parts List
- Brochures
- Order Form
- Return Goods Authorization Request Form

Introduction

This Service Manual has been developed for the purpose of ordering factory replacement parts and for Troubleshooting the Single Bicarbs. This Service Manual is not intended to replace the Operator Manual, but serve as a supplement to it. Current versions of this Service Manual and the Operator Manual as well as other helpful information can be found on our website at www.betterwater.com/support.

It is important to understand that the Better Water Bicarb Unit is a **Class II Medical Device** and that non-factory replacement parts could affect the safety, performance, and warranty of the unit.


This manual includes parts lists, photographs, schematics and diagrams to assist you in servicing the unit.



WARNINGS



1. It is unsafe to operate or service this device without first reading and understanding the entire Operator and Service Manuals. Keep this manual and other associated documentation for future reference.
2. Misuse, improper operation, and/or improper monitoring of this system could result in serious injury, death, or other serious reactions to patients undergoing hemodialysis treatment.
3. Misuse, improper use, or handling of disinfectants and chemical cleaning solutions could result in serious injury or even death. You must comply with the information contained in the Material Safety Data Sheet (MSDS) for the chemical being used.
4. To avoid electrical shock hazard, do not operate this device when the covers or panels are removed.

5.  **ELECTROMAGNETIC INTERFERENCE: This device can create and radiate radio frequency energy and may cause harmful interference if not installed according to the manufacturer's instructions.**

CAUTIONS



1. When used as a medical device, federal law restricts this device to sale by or on the authority of a physician. Per CFR 801.109 (b)(1).
2. Improper operation of this device could result in a low or no-flow alarm on the dialysis machines.
3. Misuse or improper operation of this device will void any warranty.
4. Where water is mentioned, unless otherwise noted, it must be AAMI standard quality water.
5. Electrical and plumbing connections must adhere to local statutes and any facility codes. Connect this device to a proper ground connection in accordance with the National Electrical Code. Do not remove the ground wire or ground plug. Do not use an extension cord with this device.
6. Do not remove any Caution, Warning, or any other descriptive labels from the device.
7. Do not operate this device in an explosive environment or in the presence of flammable materials. Do not use this device to store, mix, or transfer flammable liquids.
8. Movement or vibrations during shipment may cause connections to loosen.
9. Do not operate this unit in an environment where temperatures may be below 50° F or above 90° F.
10. This device should not be used for purposes outside the device's stated applications, specifications, or limitations.

MODELS

There are two models of the Single Bicarb unit; the 60 gallon and the 100 gallon. The operation, service, and replacement parts of these two units are the same with the only difference being the size of the tanks.



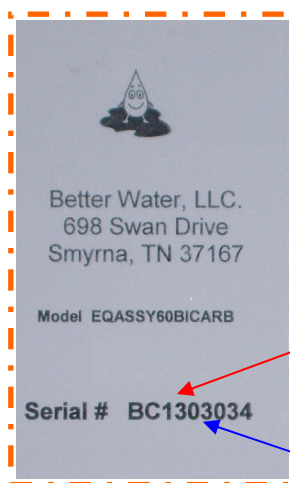
Single 60 Gallon Bicarb Unit
Part#
EQASSY60BICARB



Single 100 Gallon Bicarb Unit
Part#
EQASSY100BICARB

IMPORTANT INFORMATION FOR SUPPORT

Adhered to the front of each Bicarb unit is a label containing important information relating to the specific Bicarb unit, and details both the **Model** and **Serial Number**. Both of these pieces of information are very important in obtaining support, determining warranty, and properly servicing the Bicarb unit. Please have this information available if you contact Technical Support.



The first four numbers in the serial number denote the year and month the device was manufactured. *In the example above the Single 60 Gallon Bicarb was produced in **2013**, in the month of **March**.*

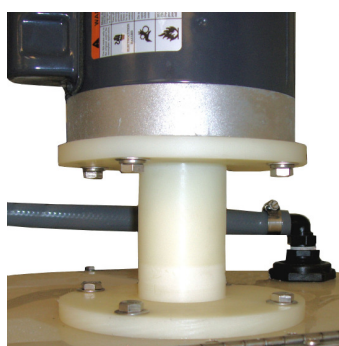
MODEL CHANGES RELEVANT for SUPPORT and REPLACEMENT PARTS

The following is a summary of changes that were made and the time period they were made in that are relevant to support and determining the correct replacement part numbers. Refer to the section above concerning the serial number in determining the year and month the device was manufactured to determine the relevance of these changes to your device.

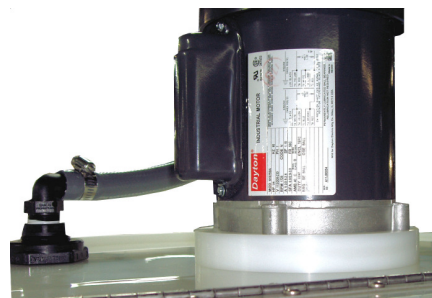
June 2006 – Mixer Motor Mount Change

Prior to June 2006, the mixer motor was mounted on an elongated plastic mount which raised the motor a few inches above the lid. From June 2006 on, a flat plastic mount was used which lowered the height of the mixer motor. The mounting hardware also changed to accommodate the new mount.

* These changes are detailed in the Mixer Motor Mount section below.



Prior to June 2006, Elongated Mount



After June 2006, Flat Mount

Mid-July 2013 – Ball Valve Change

Units manufactured before mid-July 2013 contained Plast-O-Matic ball valves which were changed to Asahi ball valves. **These valves are not interchangeable.** Although their function is the same, their width and length are slightly different, and the handles are shaped differently.

* These changes are detailed in the Single Bicarb-Front View and Plumbing sections below.

Description

3/4" Ball Valve, Blue Handle
1" Ball Valve, Red Handle



Plast-O-Matic Valve
PLVAS800170
PLVAS800174



Asahi Valve
PLVAS800170-A
PLVAS800174-A

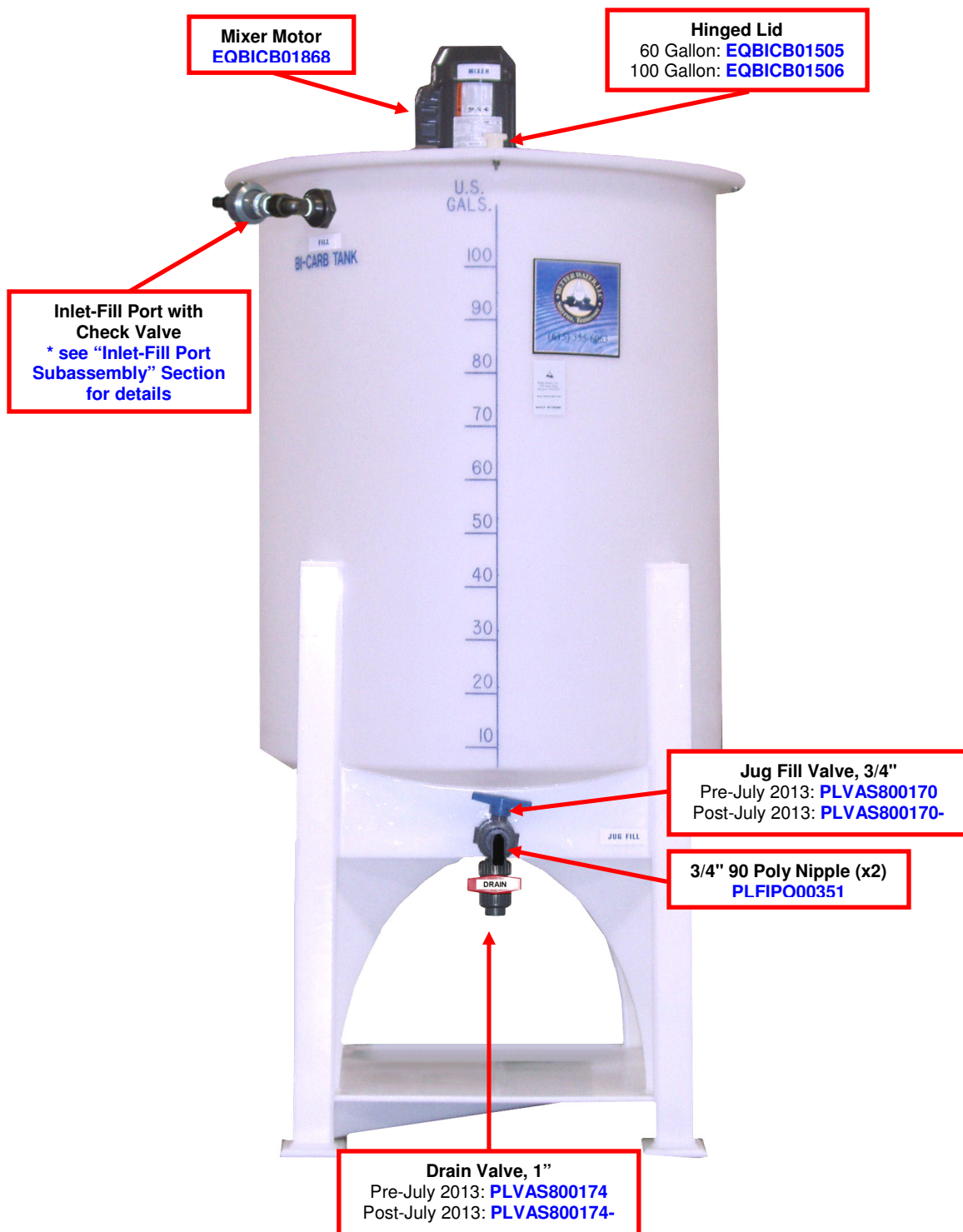
October 2013 – Added a Check Valve to Inlet Fill Port

In October 2013, a check valve was added as an additional safety feature to the Inlet Fill Port.

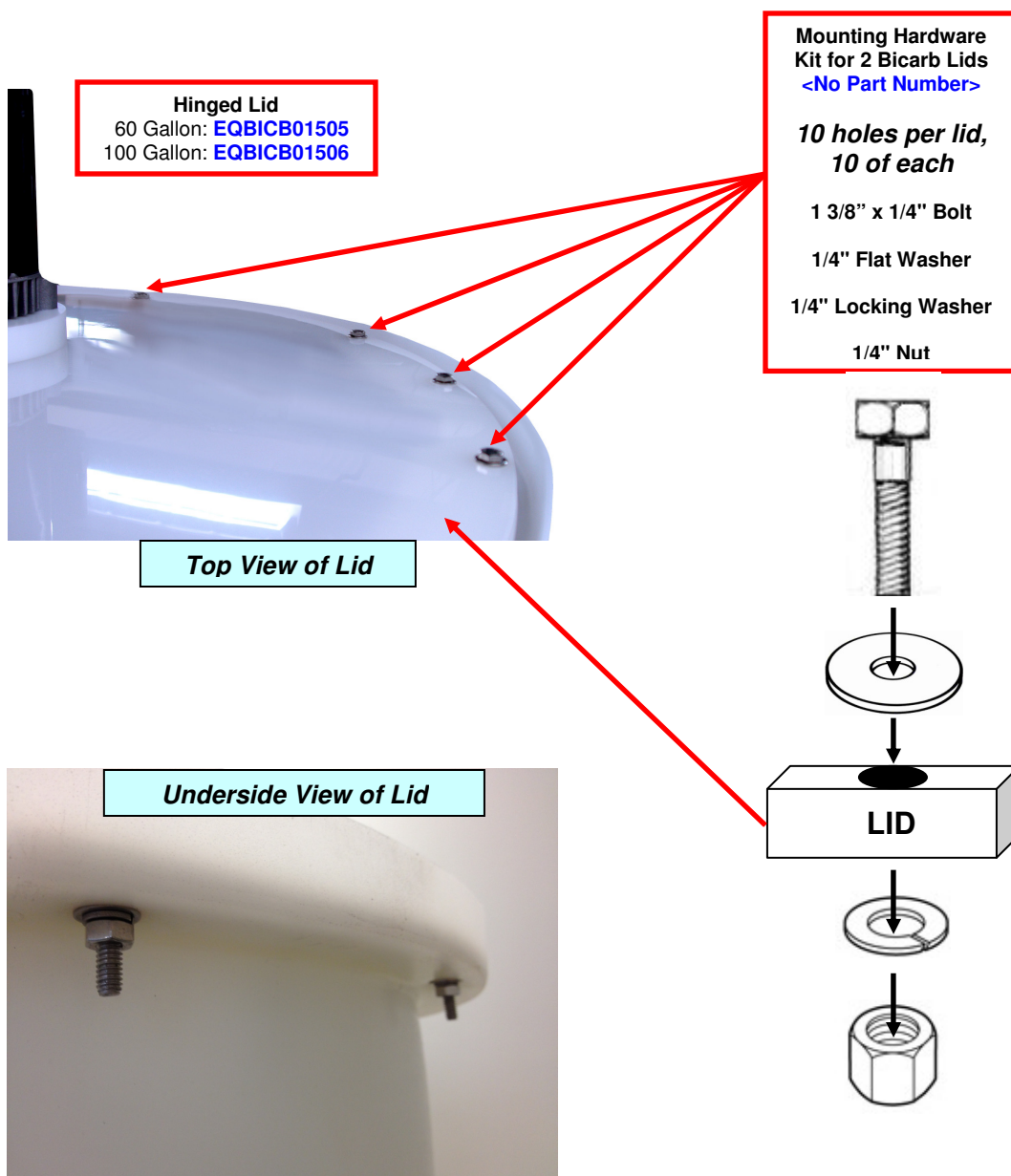
See details of individual part numbers in the "Inlet Fill Port Subassembly" section of this manual.



SINGLE BICARB (FRONT VIEW)



LID & MOUNTING HARDWARE



VOLARA FOAM for Tank Lid

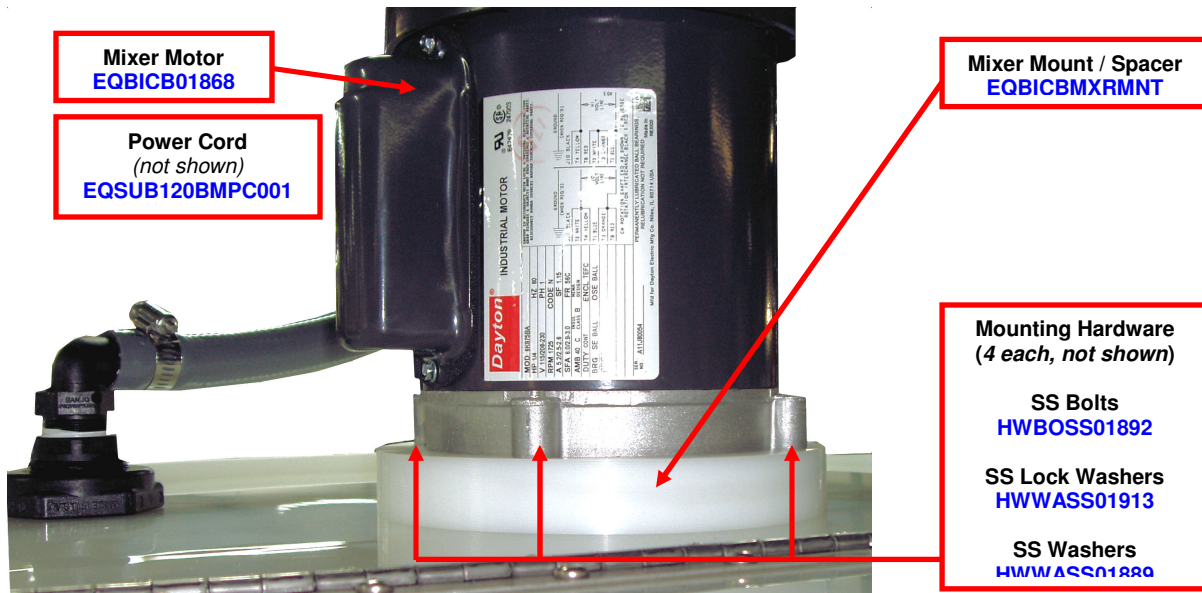
If replacing the Volara Foam (.25" thick x 1.5" width) that helps seal the lid to the tank, refer to the following:

- * 6 ft for 60 gallon Tanks
- * 10 ft for 100 gallon Tanks



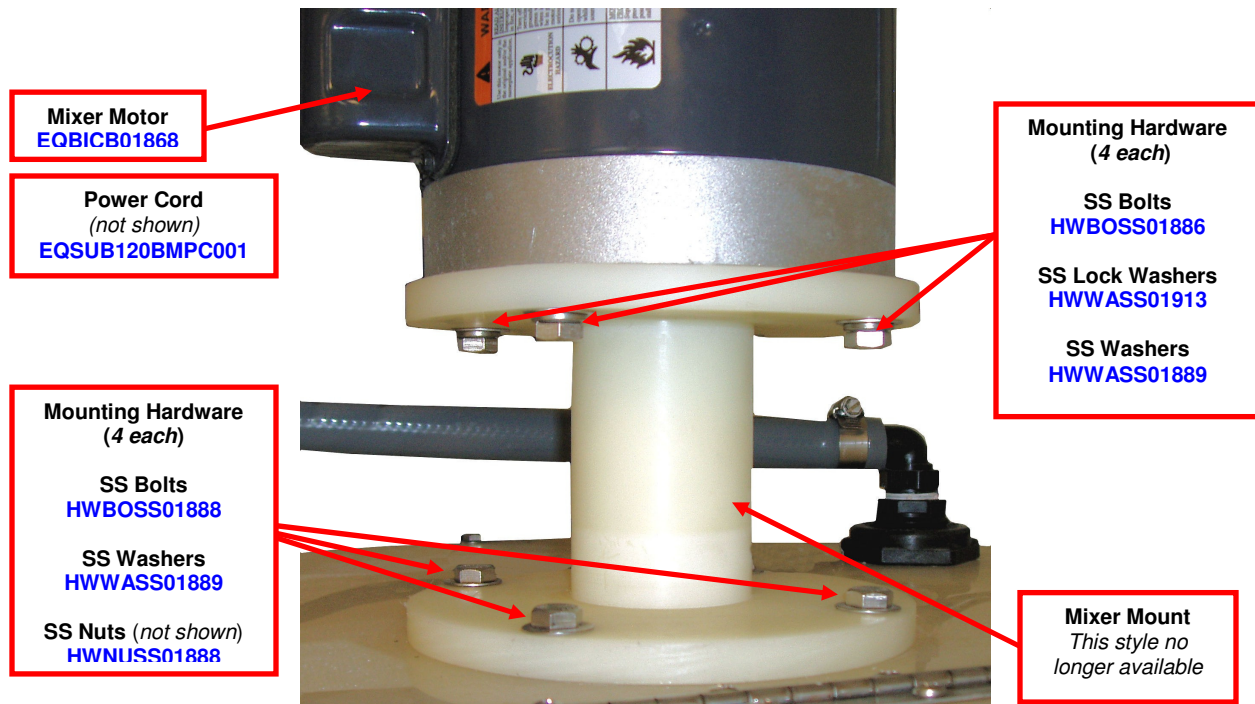
Volara Foam (.25 x 1.5)
[EQBICB01600](#)

MIXER MOTOR MOUNTS

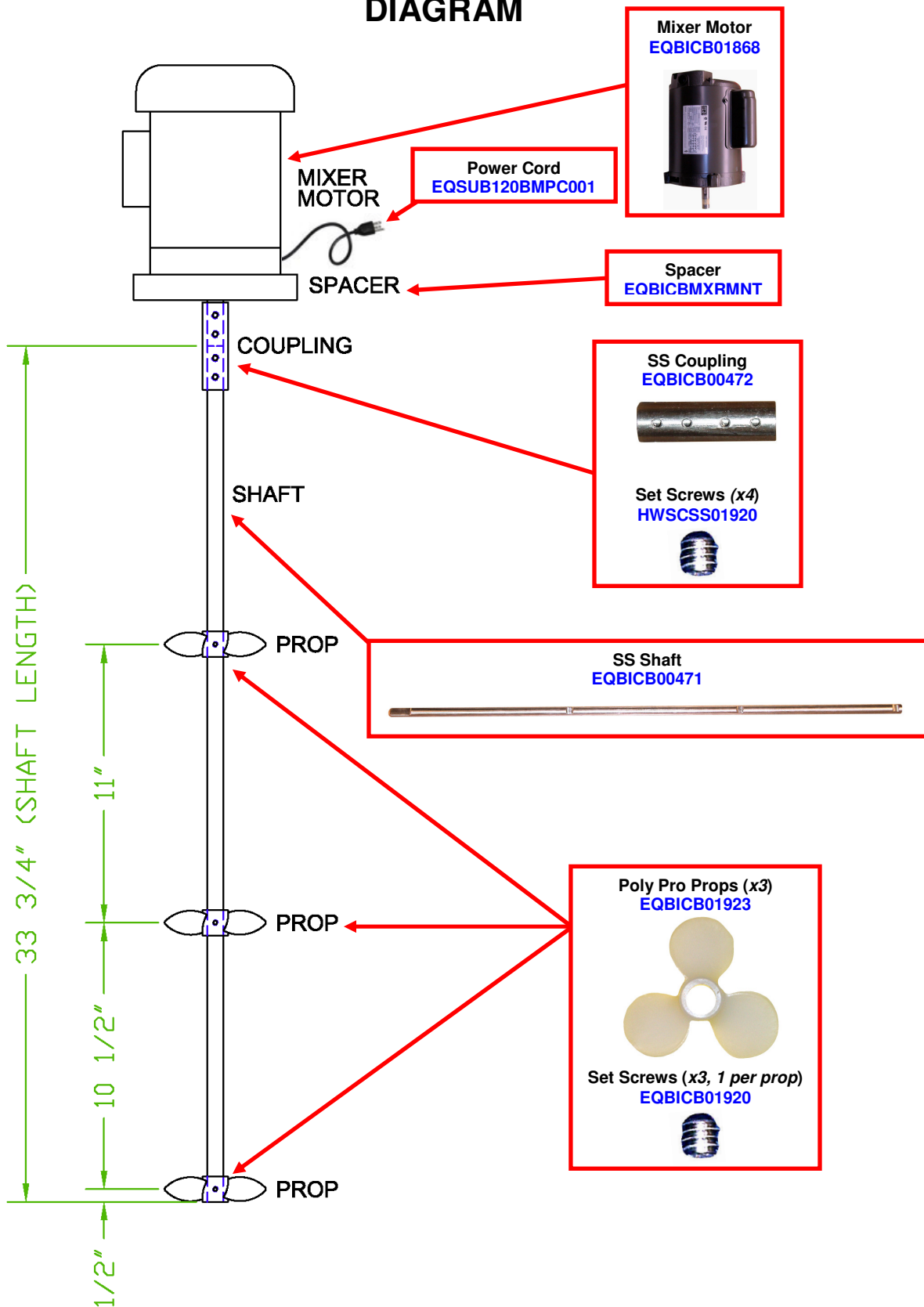


The Mixer Mount / Spacer shown above is included on all Bicarbs produced from June 2006 to present.

Prior to June 2006, the Mixer Mount shown below was included, but is no longer available.



MIXER MOTOR, SHAFT, & PROPELLERS DIAGRAM



REPLACING PROPELLERS, SHAFT and/or COUPLING

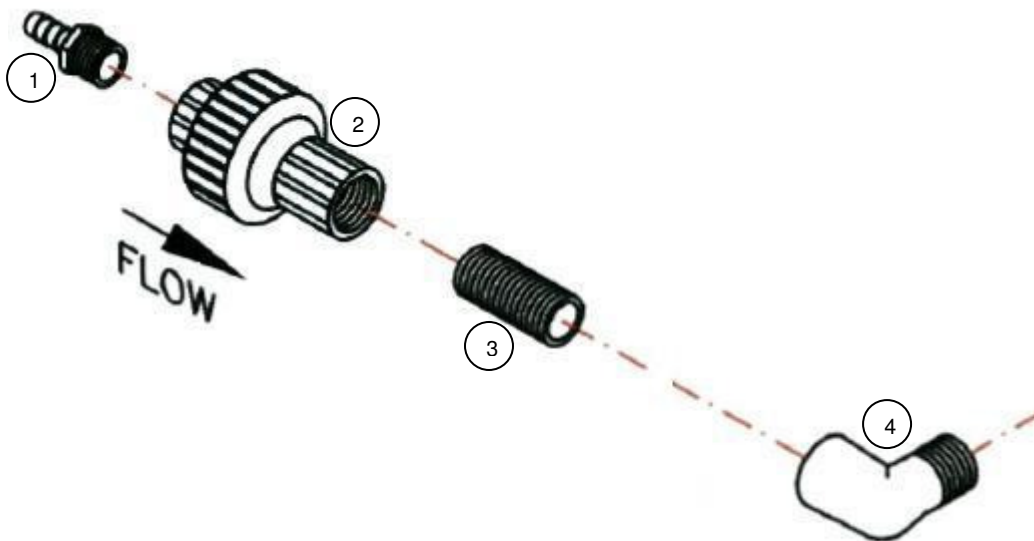
1. Unplug the Bicarb's Main Power Cord.
2. Remove the Lid bolts and nuts so the lid can be lifted (*not removed*).
3. Lift the Lid and remove the bolts and nuts holding the Motor to the Motor Mount.
4. Lift the Motor straight up, to expose the Coupling and Shaft above the Lid, then take a pair of vice-grips and clamp them to the Shaft below the Coupling. This should allow enough support and access to proceed.
5. Remove the top two Set Screws in the Coupling, then remove the Motor, carefully laying it on top of the Tank (*sideways*). You may have to heat the set screws up to soften the Lock-Tite which has been applied.
6. The Coupling can remain attached to the Shaft if neither of these two pieces are being replaced. If replacing the Shaft or Coupling, then remove the bottom two Set Screws in the Coupling and set it aside.
7. Lift the Lid and take hold of the Shaft before removing the vice-grips, then remove the Shaft from the Tank.
8. Remove each Propeller from the Shaft by loosening its related Set Screw. It may be necessary to use a hammer to gently tap down the Propellers to remove them from the Shaft.
9. Replace each Propeller, aligning the Set Screw with the etched groove, then tighten carefully.
NOTE: *Over-tightening can cause the threads on the propeller to strip.*
10. Lift the Lid, take hold of the Shaft, and reinsert it back into the Tank, and up through the Mixing Motor Mount. Hold in place with a pair of vice-grips, leaving enough room above the Shaft to reattach the Coupling.
11. Reattach the Shaft to the Coupling, then the Motor to the Coupling with the Set Screws. Use Lock-Tite on each of the Set-Screws before tightening because motor vibration will cause the set screws to back out which can cause damage to the motor and/or shaft assemblies.
12. Remove the vice-grips and allow the Coupling and Shaft to slip down through the Motor Mount, back into position.
13. Align and reattach the Motor to the Motor Mount using the previously removed bolts and nuts.
14. Realign the Lid and reattach to the Tank using the previously removed bolts and nuts.
15. Plug the Bicarb's Main Power Cord to an electrical receptacle.

REPLACING a MIXER MOTOR



1. Unplug the Mixer's Power Cord.
2. Remove the old Motor's Wiring Cover and un-wire the Power Cord.
3. Remove the new Motor's Wiring Cover and re-install/re-wire the Power Cord, consulting the wiring diagram on the new motor and wire for **low voltage**. Replace the Wiring Cover when finished.
** **NOTE:** Wire for **clock-wise rotation** to prevent upward water splash.*
4. Remove the Lid bolts and nuts so the lid can be lifted (*not removed*).
5. Lift the Lid and remove the bolts and nuts holding the Motor to the Motor Mount.
6. Lift the Motor straight up, to expose the Coupling and Shaft above the Lid, then take a pair of vice-grips and clamp them to the Shaft below the Coupling. This should allow enough support and access to proceed.
7. Remove the top two Set Screws in the Coupling, then remove the Motor, carefully laying it on top of the Tank (*sideways*). You may have to heat the set screws up to soften the Lock-Tite which has been applied.
8. Attach the new Motor to the Coupling with the Set Screws. Use Lock-Tight on each of the Set-Screws before tightening because motor vibration will cause the set screws to back out which can cause damage to the motor and/or shaft assemblies.
9. Remove the vice-grips and allow the Coupling and Shaft to slip down through the Motor Mount, back into position.
10. Align and reattach the Motor to the Motor Mount using the previously removed bolts and nuts.
11. Realign the Lid and reattach to the Tank using the previously removed bolts and nuts.
12. Plug in the Mixer Power Cord.
13. Verify the Mixer Motor rotation is clock-wise.

INLET-FILL PORT SUBASSEMBLY

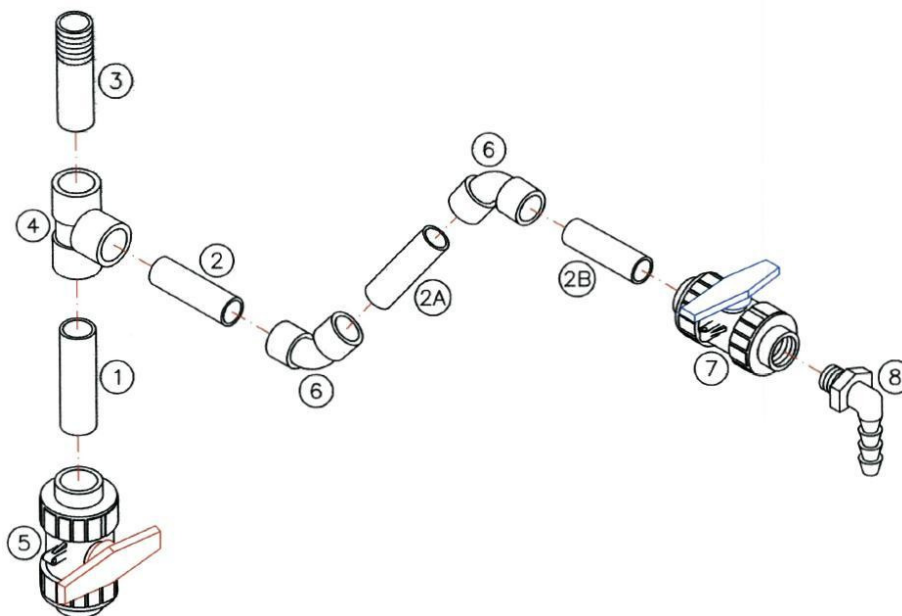


Item#	Part#	Description	Qty
1	PLFIPO00299	3/4" Poly Hose Nipple/Barb	1
2	PLVAS800160	3/4" Diaphragm Valve, Plastic, Threaded	1
3	PLFIPO00319	3/4" Poly Close Hex Nipple	1
4	PLFIPO00328	3/4" Street 90° Elbow	1

* Reference DWG 3284



JUG FILL SUBASSEMBLY



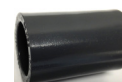
Item#	Part#	Description	Qty
1	PLPIS800045	1" PVC Sch-80 Pipe, 2 1/4" length	1
2	PLPIS800044	3/4" PVC Sch-80 Pipe, 6" length	1
2A	PLPIS800044	3/4" PVC Sch-80 Pipe, 5 1/2" length	1
2B	PLPIS800044	3/4" PVC Sch-80 Pipe, 1 1/4"	1
3	PLFIS800169	1" x 6" PVC Sch-80 Nipple, cut 1 1/4" past threads, use 16 wraps of 3/4" Teflon tape	1
4	PLFIS801914	1" x 1" x 3/4" PVC Sch-80 Tee (SxSxS)	1
5	PLVAS800174-A	1" Red Asahi Ball Valve	1
6	PLFIS800072	3/4" PVC Sch-80 45° Elbow (SxS)	1
7	PLVAS800170-A	3/4" Blue Asahi Ball Valve	1
8	PLFIPO00351	3/4" Polypro Hose Nipple	1

* Reference DWG 3109

REPLACEMENT INSTRUCTIONS IF BROKEN

In the event this assembly gets broken it can be replaced. The parts required will depend upon at which point the repair can be made, which should be at the pipes (item# 1, 2, 2A, or 2B), or at the connection to the bottom of the tank (item# 3).

* A 3/4" Coupling (2 1/8" length) may be required to connect if the pipe is broken (item# 1, 2, 2A, or 2B). This part number is [PLFIS800928](#).



BICARB VALVES DESCRIPTIONS








Jug Fill Valve

After Bicarb Solution is mixed, this valve is used to take a sample to verify the Bicarb Solution is mixed properly from the Tank. After Bicarb Solution is verified, this valve is used to fill jugs from the Tank if needed. During Disinfect procedure, this valve can also be used to verify the presence of disinfectant.

Drain Valve

This valve is used to drain all liquid from the Tank.

RELATED REPLACEMENT PARTS

DESCRIPTION	PART#	PICTURE
Propeller Shaft - 316 Stainless Steel	EQBICB00471	
Propeller - Polypropylene	EQBICB01923	
Propeller Set Screw - Stainless Steel	EQBICB01920	
Shaft Coupling - Stainless Steel	EQBICB00472	
Coupling Set Screw - Stainless Steel	HWSCSS01920	
Mixer Motor - 1/4 HP, 115 VAC	EQBICB01868	
Mixer-Motor Power Cord - For Mix Only, with ON/OFF switch	EQSUB120BMPC001	

Pictures do not reflect the size of the item in relation to the other pictures

RELATED REPLACEMENT PARTS

DESCRIPTION	PART#	PICTURE
3/4" Blue Handle Valve, Plast-O-Matic <i>* For models manufactured before mid-July 2013</i>	PLVAS800170	
3/4" Blue Handle Valve, Asahi <i>* For models manufactured from mid-July 2013</i>	PLVAS800170-A	
1" Red Handle Valve, Plast-O-Matic <i>* For models manufactured before mid-July 2013</i>	PLVAS800174	
1" Red Handle Valve, Asahi <i>* For models manufactured from mid-July 2013</i>	PLVAS800174-A	
Concentrate Regulator Calibration Kit <i>* For calibrating regulators in Floor-Valve-Boxes and Panels</i> <i>* Blue wand is for bicarbonate; Red wand is for acid</i>	EQASSYCC01	
Flow Control, 2.0 GPM PVC Sch-80	PLFCS802001	
Volara Foam for Tank Lid, .25" TK x 1.5" W <i>* 6 ft for 60 gallon Tanks</i> <i>* 10 ft for 100 gallon Tanks</i>	EQBICB01600	

Pictures do not reflect the size of the item in relation to the other pictures

LIMITED WARRANTY TERMS and CONDITIONS

- a. This limited warranty is given only to the original buyer and covers the equipment delivered with this limited warranty.
- b. The buyer shall be barred from any recovery on this limited warranty or otherwise for damages due in whole or in part to...
 - ... unreasonable use
 - ... improper operation
 - ... use beyond normal fashion
 - ... failure to follow instructions
 - ... failure to maintain the product in good condition and repair
 - ... or the like.
- c. If the buyer discovers or should have discovered a defect in which it is reasonable to conclude that damage, either personal, property, or economic, may result, the buyer's continued use of the product shall constitute any assumption of risk by the buyer and a bar to any recovery for breach of this limited warranty or otherwise.
- d. No oral or written representation, information, or advice given by Better Water LLC or any of its representatives shall create a warranty or in any way increase the scope of this express limited warranty and shall not form a part of the basis for bargain.

WHAT IS WARRANTED AND FOR HOW LONG?

- a. All equipment, excluding ion exchange and filtration media and cartridges, are warranted to be free from factory defects in materials, and workmanship under normal use for a period of one (1) year from the date of shipment.
- b. It is a condition precedent to recovery on this limited warranty that the buyer strictly comply with all operating and maintenance guidelines established by Better Water LLC and that the serial number (*if applicable*) is intact and legible on the equipment.
- c. It is a condition precedent to recovery on this limited warranty for damage to the external finish of the equipment that the buyer notifies Better Water LLC at the time of the installation that the finish is damaged.

WHAT IS REMEDY FOR BREACH OF THIS LIMITED WARRANTY or NEGLIGENCE BY BETTER WATER LLC

- a. Buyer's sole and exclusive remedy for any breach of this limited warranty or negligence by Better Water LLC shall be repair or replacement of the defective part, at the option of Better Water LLC, provided such defective part is returned to Better Water LLC for inspection.
- b. Better Water LLC shall not be obligated to supply an exact replacement of the defective part and reserves the right to substitute new and improved parts.
- c. Better Water LLC shall provide at no cost to buyer, labor to remove and/or replace defective parts covered by this limited warranty for a period of ninety (90) days from the date of installation by Better Water LLC of the equipment.
- d. After such ninety (90) day period, buyer shall be responsible for any labor or service charge for the removal and/or replacement of any defective parts.
- e. Buyer shall be responsible for all travel expenses and freight charges at all times.
- f. Better Water LLC shall have no obligation to repair or replace any defective part if buyer fails to follow the procedure set forth in "HOW TO OBTAIN A REPLACEMENT PART UNDER LIMITED WARRANTY".

IN NO EVENT SHALL THIS LIMITED WARRANTY BE CONSTRUED TO COVER, NOR SHALL BETTER WATER LLC BE LIABLE TO BUYER AS ANY OTHER PERSON FOR, ANY CONSEQUENTIAL, INCIDENTAL, ECONOMIC, DIRECT, INDIRECT, GENERAL OR SPECIAL DAMAGES, WHICH ARE HEREBY EXPRESSLY DISCLAIMED.

HOW TO OBTAIN A REPLACEMENT PART UNDER LIMITED WARRANTY

- a. Buyer should contact the Customer Service or Technical Support Departments and request a Return Goods Authorization.
- b. Described part(s) will be sent with a purchase order.
- c. The returned part(s) will be returned to the factory for limited warranty consideration. If part(s) are not covered under the limited warranty, part(s) will be considered billable against the purchase order supplied.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY:

By way of example and not limitation, this limited warranty does not cover:

- Damage to or replacement of any ion exchange resin or filter media
- Labor or service charges for the removal and/or replacement of any defective parts after the ninety (90) day period from the date of installation or sale by Better Water LLC
- Freight charges and travel expenses
- Damage from inadequate or defective wiring, improper voltage, improper connections or electrical service, inadequate or defective plumbing, water supply, or water pressure, or in violation of applicable building, plumbing or electrical codes, laws, ordinances or regulations.
- Damage from improper installation or operation, including but not limited to, abuse, accident, neglect, improper maintenance, freezing and fires, or abnormal use.
- Damage caused by contaminants in Buyer's water supply, including hardness, chlorine, chloramines, sulfur, bacterial iron, tannin, algae, oil, organic matter or other unusual substances, if special equipment has not been installed by Better Water LLC to remove such contaminants
- Damage to or caused by filters/membranes or other replacement parts not purchased from Better Water LLC or damage caused by modification, alteration, repair or service of the equipment or any of its parts by anyone other than Better Water LLC or its expressly authorized representatives.

